

What Is Claimed Is:

1. A storage system connected to a computer  
comprising:

5       a first control unit, a second control unit, a third  
control unit and plural storage units, wherein  
      said first control unit, said second control unit and  
      said third control unit each has a memory, and  
      said first control unit stores data received from said  
10   computer in the memory possessed by the first control unit  
and the memory possessed by said second control unit.

2. A storage system according to Claim 1, wherein said  
first control unit stores the data received from said  
15   computer in the memory possessed by the first control unit  
and the memory possessed by said third control unit in a  
case where said second control unit becomes unusable.

3. A storage system according to Claim 2, wherein said  
20   second control unit stores the data received from said  
computer in the memory possessed by said second control  
unit and the memory possessed by said first control unit.

4. A storage system according to Claim 3, wherein said  
25   first control unit receives the data from said computer

instead of said second control unit when said second control unit becomes unusable and said first control unit stores said received data in the memory possessed by said first control unit and the memory possessed by said third  
5 control unit.

5. A storage system according to Claim 2, further comprising a fourth control unit, said fourth control unit having a memory, wherein  
10 said first control unit receives the data from said computer instead of said second control unit when said second control unit becomes unusable and said first control unit stores said received data in the memory possessed by said first control unit and the memory possessed by said  
15 fourth control unit.

6. A storage system according to Claim 5, wherein said first control unit and said second control unit receive a power source supply from a different power source.  
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7. A storage system according to Claim 6, wherein said third control unit and said fourth control unit receive a power source supply from a different power source as well as said first control unit and said third control unit  
25 receive a power source supply from a different power source.

8. A storage system according to Claim 5, further comprising a switch connecting each of said first control unit, said second control unit, said third control unit and  
5 said fourth control unit, wherein each of said control units is connected to said computer via said switch.

9. A storage system according to Claim 8, further comprising an interface unit, wherein  
10 said switch is connected to said computer via said interface, and  
said interface unit, said switch, said first control unit, said second control unit, said third control unit and said fourth control unit compose a single controller.

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10. A storage system according to Claim 9, further comprising a management device, wherein said management device is connected to said interface unit, said first control unit, said second control unit, said third control  
20 unit and said fourth control unit.

11. A storage system according to Claim 10, wherein said management device has information showing a relationship between said storage unit and said first  
25 control unit, said second control unit, said third control

unit and said fourth control unit in the storage system,  
and

said interface unit, said first control unit, said  
second control unit, said third control unit and said  
5 fourth control unit execute storage of said data based upon  
said information.

12. A storage system according to Claim 11, wherein,  
in a case where a failure occurs in any one of said first  
10 control unit, said second control unit, said third control  
unit and said fourth control unit, said information  
includes information designating the control unit having a  
memory that stores a copy of the data received by the  
control unit that is a substitute for the control unit in  
15 which said failure occurs and by the control unit in which  
said failure occurs.

13. A storage system according to Claim 12, wherein,  
in a case where a failure occurs in any one of said first  
20 control unit, said second control unit, said third control  
unit and said fourth control unit, said management device  
detects said failure and changes said information depending  
upon a state of said failure and informs said interface  
unit, said first control unit, said second control unit,  
25 said third control unit and said fourth control unit of the

occurrence of said failure and the change of said  
information, and said interface unit, said first control  
unit, said second control unit, said third control unit and  
said fourth control unit operate based upon said changed  
5 information.

14. A storage system according to Claim 13, wherein,  
in a case of a recovery from said failure, said management  
device informs said interface unit, said first control unit,  
10 said second control unit, said third control unit and said  
fourth control unit of the recovery from said failure.

15. A storage system according to Claim 9, wherein  
each of said interface unit, said first control unit, said  
15 second control unit, said third control unit and said  
fourth control unit has information showing a relationship  
between said storage unit and said first control unit, said  
second control unit, said third control unit and said  
fourth control unit in the storage system, and  
20 said interface unit, said first control unit, said  
second control unit, said third control unit and said  
fourth control unit execute the storage of said data based  
upon said information.

25 16. A storage system according to Claim 15, wherein,

in a case where a failure occurs in any one of said first control unit, said second control unit, said third control unit and said fourth control unit, said interface unit detects said failure and changes said information depending  
5 upon the state of said failure and informs said first control unit, said second control unit, said third control unit and said fourth control unit of the occurrence of said failure and the change of said information, and said first control unit, said second control unit, said third control  
10 unit and said fourth control unit operate based upon said changed information.

17. A storage system according to Claim 4, wherein,  
when a failure occurs in said second control unit, said  
15 first control unit transfers the data stored in said first control unit to the memory of said third control unit at the time point.

18. A storage system according to Claim 4, wherein,  
20 when a failure occurs in said second control unit, said first control unit stores the data stored in said first control unit in said storage unit at the time point.

19. A storage system according to Claim 4, wherein,  
25 when a failure occurs in said second control unit, said

third control unit and said fourth control unit store a part of the data stored in each memory in said storage unit so as to receive the data from said first control unit.

5        20. A storage system according to Claim 9, wherein, when a failure occurs in said first control unit and said second control unit, said interface unit reports an error to an access from said computer to said storage unit that is managed by said first control unit.

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21. A storage system according to Claim 9, further comprising a management device, wherein

said management device is connected to said interface unit, said first control unit, said second control unit,  
15 said third control unit and said fourth control unit without through said switch.